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Back to Gold?

By James G. Hoehn

Recently, there has been a surprising revival of interest in reestablishment of a gold standard. The gold standard had been widely regarded as a dead issue even before the time of the collapse of the Bretton Woods system of fixed exchange rates. In the early 1960's, one gold advocate recognized that his stand was courting the risk "of being classified with the dodo bird."¹

Increasing dissatisfaction with the events of the 1970's is among the factors responsible for renewed interest in gold. During the past 10 years the consumer price index has doubled. The inflation rate and interest rates have risen well above 10 percent per year. Exchange rates have been subject to wide fluctuations, and the United States has endured recurrent balance-of-payments deficits and a depreciating dollar.

Whether or not monetary mismanagement is responsible, many have questioned the ability of discretionary monetary policy to perform better than some more automatic rule. Among the reforms suggested are those that would keep some monetary or reserve aggregate growing at a constant rate, fix the foreign exchange value of the dollar, or peg the price of gold—which is the essence of the gold standard. Each of these proposals intends to prevent continuing inflation by placing limits on the creation of money. The Federal Reserve would be bound by some legal constraint that provides the money supply and general price level with a "nominal anchor." The absence of

such an anchor is alleged to account for the acceleration of inflation that occurred when the gold link and fixed exchange rates were eliminated.²

The purpose of this article is to contrast the operating characteristics of a gold standard with those of a discretionary regime. Such an analysis is helpful when evaluating policy choices. However, policy recommendations depend on value judgments as well as analysis of the facts. Most proponents of a return to a gold standard hold to normative judgments and political philosophies that strongly disfavor the delegation of discretionary powers to the central authorities.

It is concluded that although monetary conditions were as stable in the gold standard era as they are today, unique circumstances smoothed the functioning of the earlier system. Under current conditions, restoration of the gold standard would probably result in greater monetary instability than now prevails.

Gold standards require policy discipline

Because "the gold standard" means different things to different people, it is important to understand what variants are possible and how they operate. The elementary requirement is a fixed price of gold.

2. A discussion of the "nominal anchor" concept is found in Robert J. Barro, "U.S. Inflation and the Choice of Monetary Standard" (unpublished paper prepared as part of the National Bureau of Economic Research Project on Inflation, supported by the National Science Foundation, and for presentation to the Conference on Inflation, Washington, D.C., October 10, 1980; September 1980).

1. Murray N. Rothbard, "The Case for a 100 Per Cent Gold Dollar," in *In Search of a Monetary Constitution*, ed. Leland B. Yeager (Cambridge, Mass.: Harvard University Press, 1962), p. 94.

A strict gold standard also requires that a country's money stock be linked more or less rigidly to the quantity of monetary gold. Each dollar of the central bank's liabilities (that is, official currency outstanding plus commercial bank deposits at the central bank) must be backed by some dollar value of gold.³ The reserve backing ratio is the proportion of the value of these liabilities that must be held as gold reserves, measured at the official price. A fractional reserve gold standard permits issuance of more liabilities than the value of the monetary gold stock, but a 100-percent gold standard permits no issuance beyond the value of the gold stock.

To maintain a constant gold price, the central bank must "make a market" for gold by offering to buy and sell unlimited quantities at a set price. Gold reserves increase when agents sell their gold for dollars. Gold reserves decline when holders of the dollars redeem them in gold. The central bank must passively accept these changes in gold reserves and must adjust its liabilities, in proportion, if it is to maintain a fixed reserve backing ratio.

For example, an increase in gold reserves requires a corresponding increase in central bank liabilities. The bank's purchase of the gold with dollars represents an increase in its liabilities equal to the gold stock increase. Under a 100-percent reserve system, the central bank cannot create any further liabilities. Under a fractional system, any inflow creates an oversufficiency of reserves and, hence, requires a multiple expansion of liabilities. If the reserve fraction is λ , liabilities must be expanded by a total of $(1/\lambda)$ times the gold inflow. This can be accomplished by the purchase of any assets (bills, bonds, foreign exchange) other than gold or by lending to the banking system. The smaller the reserve backing ratio, the higher is the level of central bank liabilities for a given monetary gold stock.

Central bank liabilities plus circulating gold coins constitute the monetary base, upon which is built the country's money stock. If commercial banks themselves have fractional reserve requirements, this base can be multiplied in the usual textbook fashion into a larger money stock. If, then, both

3. In practice, the liabilities subject to reserve backing requirements varied from one country to another. For example, some reserve requirements were based only on currency issued, while others were based on other liabilities as well.

the central bank and commercial banks have fractional reserves, the gold stock becomes the base for a twice-multiplied money stock.

Many gold advocates point to the fragility of such a system in the face of a wave of gold redemptions as a sufficient argument for the 100-percent gold standard, under which only gold and currency and deposits fully backed by gold would circulate as money. A 100-percent system would eliminate banking as it is known today, for banks would be unable to lend any part of the demand deposits entrusted to them.

Many gold advocates consider the 100-percent system as impractical and unnecessary. A fractional reserve system allows banks to operate much as they do today. Some advocate no reserve requirements at all for commercial banks, which would be constrained only by prudence, the need to maintain the confidence of depositors, and the legal responsibility to honor requests for gold redemptions.

Many who argue in favor of restoration of gold convertibility of the dollar do not want a rigid link between the gold stock and the money stock. They see the full convertibility requirement as an adequate constraint on central bank policy. Gross misbehavior would threaten public confidence, and currency redemptions would follow, rapidly narrowing the margin for discretion. But the authorities would retain some latitude for attempting to dampen the business cycle and for neutralizing the effects of short-run balance-of-payments disequilibria on the money supply.

World monetary conditions determine a country's price level and money stock under an international gold standard

The general price level and the money stock are determined in very different ways, depending on whether a gold standard is domestic or international. An international gold standard arises if the world's major trading countries fix the gold value of their currencies, which then implies a set of fixed exchange rates. Under any system of fixed exchange rates, a central bank that attempts to expand the money supply beyond residents' desired balances will face a balance-of-payments deficit. A fractional reserve system requires contraction of the money stock by a multiple of the deficit. If the central bank does not reduce the

monetary base and money stock in full proportion to the reduction in monetary gold, it risks continued deficits, cumulative gold losses, and, ultimately, exhaustion of the gold stock.

Under an international gold standard the price level in a country, in terms of gold, is dictated by the world commodity markets. This price level, in turn, determines the amount of money residents need to carry out their transactions, given their real income and velocity of money. For example, an increase in prices in other major trading countries raises the level of domestic prices through commodity arbitrage. This, in turn, raises transaction needs for money. The country will acquire additional gold reserves through a temporary excess of receipts over expenditures—that is, by running a balance-of-payments surplus. The increased gold reserves permit an expansion of the money supply to meet the increased demand.

The world price level then, given domestic real income and velocity, dictates the domestic money stock. The world price level, in turn, reflects the world money supply, income, and velocity. Any factor that increases the world's money supply, according to the quantity theory of money, will raise the price level in proportion, other things the same.

The world money supply is determined by the legal convertibility price of gold, the ratio of money to the gold stock, and the stock of monetary gold. An increase in the price of gold, which of course constitutes "debasement," raises the nominal value of gold reserves and, hence, permits expansion of the money supply for a given reserve backing ratio. An increase in the ratio of money to gold (a decrease in the gold reserve ratio) also allows an expansion in the world money supply. An increase in monetary gold stocks, due to new production in excess of the private nonmonetary consumption of gold, permits expansion in the world money supply.

A change in determinants of the demand for money, for a given supply, also alters the world price level. For example, increases in real income or decreases in the velocity of money are associated with a rise in the demand for money and, thus, have a deflationary effect on the world price level. (See the Appendix for a mathematical treatment of the determination of the world price level.)

The major countries of the world participated in

an international gold standard between 1879 and 1914. Prices fell until 1896 because the growth in the demand for money exceeded the increase in supply. Gold discoveries in the 1890's in the Klondike-Yukon and South Africa, as well as the new cyanide process of refining gold, increased the world money stock and led to rising prices after 1896.

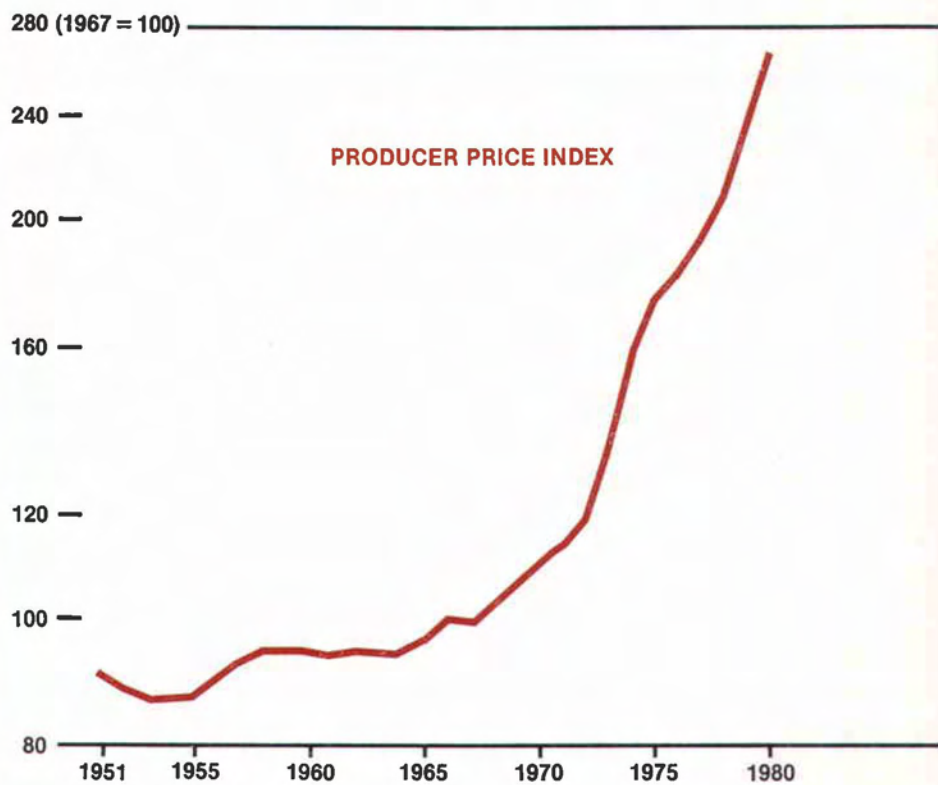
Money supplies were also expanded during the brief period of the international gold standard by an increase in the ratio of money to gold. Because a unit of deposits absorbs less of the monetary base than does currency, the rapid growth of checking account banking raised the ratio of money to the monetary base. Central banks in later periods raised the ratio of the monetary base to gold, which also inflated the money supply for a given stock of gold. This expansion of the base-gold ratio resulted partly from the substitution by central banks of foreign exchange (pounds sterling, francs, and marks, which were convertible into gold) for gold itself as a reserve medium. The shift to foreign exchange reserves was especially pronounced during the inflation era beginning just prior to the turn of the century.

Central banks did not maintain a rigid link to gold

In practice, central banks did not adhere to a strict gold standard. As one manifestation of this nonadherence, they did not reinforce the effects that changes in the balance of payments had on the monetary base and money stock. For example, a loss of gold or other foreign exchange reserves due to a balance-of-payments deficit should have been accompanied by a multiple contraction of the monetary base. The typical response, however, was to neutralize, in part, the reduction in the monetary base arising from the payments deficit.⁴

4. This is the conclusion Arthur I. Bloomfield reached in *Monetary Policy Under the International Gold Standard: 1880-1914* (New York: Federal Reserve Bank of New York, 1959) after studying the behavior of 11 European central banks. Donald N. McCloskey and J. Richard Zecher reached a similar conclusion with regard to the United States and the United Kingdom in "How the Gold Standard Worked, 1880-1913," in *The Monetary Approach to the Balance of Payments*, ed. Jacob A. Frenkel and Harry G. Johnson (Toronto and Buffalo: University of Toronto Press, 1976; reprinted in paperback, 1977), pp. 357-85.

Prices under the gold standard were erratic but did not display the long-run inflationary trend of recent times



SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis.
U.S. Department of Commerce, Bureau of the Census.
Federal Reserve Bank of Dallas.

Table 1
LONG-RUN PRICE MOVEMENTS IN UNITED STATES

(Annual inflation rates, in percent)

	Gold standard era			Recent era			
	1879-96	1896-1914	1879-1914	1951-64	1964-71	1971-80	1951-80
GNP implicit price deflator . . .	-2.22	1.95	.076	1.88	4.04	7.06	3.99
Consumer price index	-.66	1.04	.21	1.36	3.88	8.22	4.06
Producer price index, all commodities ³	-1.64	2.14	.28	.30	2.67	10.00	3.80

1. 1889-96 only.
2. 1889-1914 only.
3. Wholesale price index before March 1978. To construct a continuous series, the wholesale price index was taken as .6854 times the Warren-Pearson index for 1879-90 and as the U.S. Bureau of Labor Statistics index for 1890-1914.
SOURCES: International Monetary Fund.
U.S. Department of Commerce, Bureau of Economic Analysis.
U.S. Department of Commerce, Bureau of the Census.
Federal Reserve Bank of Dallas.

Another less direct way to examine central bank performance is to estimate statistically the closeness and constancy of the relation between the money stock and the gold stock. The results of regression analysis of U.S. data indicate that a change in the gold stock was typically associated with a proportionately smaller change in money. There was also a slight tendency for the ratio of money to gold to increase over time. For example, the following equation fitted over the 1879-1914 period shows the relation between annual changes in gold and annual changes in money:

$$\Delta \ln M_t = .040 + .424 \Delta \ln (P_g G^m)_t + e_t, \quad (5.4) \quad (6.1)$$

(t statistics in parentheses)
 $R^2 = .5261$; $SE = .036$.

where M is the M-2 money measure (currency outside the U.S. Treasury and bank vaults plus demand and time deposits at commercial banks), P_g is the price of gold, and G^m is the monetary gold stock. The hypothesis that $\Delta \ln M_t = \Delta \ln (P_g G^m)_t$ (that the reserve backing ratio was constant) may be rejected at a significance level of .005.

Monetary conditions surprisingly stable under the historical gold standard

One important issue in the controversy over the gold standard is whether such a system will provide more stable monetary conditions than a managed money regime. A simple comparison between the 1879-1914 era and the 1951-80 era, following

the Treasury-Federal Reserve Accord of 1951, indicates that long-run price stability was superior under the gold standard (Table 1). The consumer price index computed by the U.S. Bureau of Labor Statistics was virtually unchanged over the early period, rising from 28 percent of the 1967 base to 30.1 percent. The recent period saw an annual inflation rate of over 4 percent, the index rising from 48.3 percent of the 1975 base in 1951 to 153.1 percent in 1980.

Interestingly, the rate of money growth was approximately the same under the gold standard as later. Money grew at a compound rate of 6.8 percent, compared with 7.1 percent in the more recent period (Table 2). The rapid growth of money under the gold standard was not associated with long-run inflation because of the rapidly increasing demand for money (decreasing velocity). In the 1951-80 period, increasing velocity aggravated the inflationary impact of rapid money growth.

The long-run stability of prices was reflected in the relative stability of long-term interest rates in the gold standard era (Table 3). Average annual railroad bond yields ranged from 3.83 percent to 5.98 percent and sustained an average annual absolute change of only 13 basis points from 1879 to 1914. By contrast, the 1951-80 period saw long-term Government bond yields range from 2.52 percent in 1954 to 11.39 percent in 1980, reflecting increasing long-run inflationary expectations. The average annual absolute change was 44 basis points. For Aaa-rated corporate bonds the range

Table 2
MONEY GROWTH IN UNITED STATES

(In percent)

	Gold standard era			Recent era			
	1879-96	1896-1914	1879-1914	1951-64	1964-71	1971-80	1951-80
Annual growth rate for M-2 money measure ¹	5.83	7.66	6.77	4.95	7.43	10.11	7.13
Standard deviation	6.46	3.87	5.27	2.05	2.36	2.14	2.98

1. For 1879-1914, currency outside U.S. Treasury and bank vaults plus demand and time deposits at commercial banks; for 1951-59, same concept as for 1879-1914 but also includes foreign demand balances at Federal Reserve banks; for 1959-80, the current definition as described in "The Redefined Monetary Aggregates," *Federal Reserve Bulletin*, February 1980.

SOURCES: Board of Governors, Federal Reserve System.
Citibank.
U.S. Department of Commerce, Bureau of the Census.
Federal Reserve Bank of Dallas.

Table 3
INTEREST RATE FLUCTUATIONS IN UNITED STATES

(In percent)

	Average yield	Standard deviation of yield	Average annual absolute change
Gold standard era, 1879-1914			
Long-term railroad bonds	4.46	0.52	0.13
Prime commercial paper (4- to 6-month) ¹ . . .	5.35	1.15	.91
Recent era, 1951-80			
Long-term U.S. Government bonds	5.36	2.32	.44
Aaa corporate bonds (Moody's)	5.82	2.43	.46
U.S. Treasury bills (3-month)	4.46	2.54	1.00
Federal funds ²	5.34	3.06	1.50
Prime commercial paper (4- to 6-month) ³ . . .	5.16	2.71	1.14

1. 1890-1914 only.

2. 1955-80 only.

3. From November 1979 on, 6-month notes.

SOURCES: *Economic Report of the President, January 1981*.

International Monetary Fund.

U.S. Department of Commerce, Bureau of the Census.

Federal Reserve Bank of Dallas.

Table 4
SHORT-RUN PRICE VARIABILITY IN UNITED STATES
(In percent)

	Average annual change	Standard deviation of annual change	Average annual absolute change
Gold standard era, 1879-1914			
GNP implicit price deflator ¹	0.76	2.85	1.50
Consumer price index21	2.16	1.27
Wholesale price index28	5.54	4.51
Recent era, 1951-80			
GNP implicit price deflator	3.99	2.50	3.99
Consumer price index	4.06	3.45	4.07
Producer price index, all commodities ² . . .	3.80	4.96	4.15

1. 1889-1914 only.
2. Wholesale price index before March 1978.
SOURCES: International Monetary Fund.
U.S. Department of Commerce, Bureau of Economic Analysis.
U.S. Department of Commerce, Bureau of the Census.
Federal Reserve Bank of Dallas.

was 2.86 to 11.94, with an average absolute change of 46 points.

It might be expected that short-run monetary instability was greater during the earlier period, since the era was marred by bank panics and liquidity squeezes that have since been eliminated through deposit insurance and establishment of the Federal Reserve System. Certainly, the money stock showed a more erratic pattern. The standard deviation of annual percentage changes in M-2 was 5.3 from 1879 to 1914 and only 3.0 from 1951 to 1980. However, this does not indicate that monetary shocks were great under the gold standard. Changes in a country's money stock under any system of fixed exchange rates are more the consequences of changes in the demand for money than an independent source of instability. Some of the extra variability, however, might be attributed to liquidity crises, which were a probable consequence of the gold standard. Many now believe deposit insurance could have eliminated these crises or reduced their frequency and severity.

An alternative measure of short-run monetary instability would be the volatility of short-term interest rates. In the early period the annual absolute change in the commercial paper rate was 91 basis points, slightly lower than the 114 points in the later period. The contrast is less pronounced than for long-term interest rates but reflects the

same phenomenon of increasing inflationary expectations in the later era.

Similarly, and for the same reason, annual price changes were typically smaller in the early period (Table 4). Price movements might have been more difficult to predict in advance, however, because the distribution of annual price changes included frequent and often sizable negative values. In the later period, price changes seemed to have a floor at zero. The implicit deflator for the gross national product rose each year of the 1951-80 period.

Short-run monetary stability is no better today than it was in the gold standard period. This result is surprising and difficult to explain in view of the greater present-day stability of the banking system.

Current conditions unfavorable to a gold link

If the gold standard were to be reinstated here, prices would be determined by the supply and demand for money within the United States and in those countries that chose to join the United States in pegging their currencies to gold. While this country would be a proportionately larger member of a new "gold club" than in the old one, it would still be subject to foreign monetary influences.

However, the monetary gold stock, and hence the money supply and price level, would be subject

to very different influences. Gold production in earlier times could be depended on to increase whenever deflation occurred, since that lowered production costs and made production more profitable. As it raised the money supply, increased gold production tended to halt or slow deflation. Likewise, inflation tended to reduce production and brake monetary growth. Thus, the profit-making motive of gold producers promoted the long-run stability of prices.

Today, most gold production is controlled by the governments of South Africa and the Soviet Union, which limit their gold sales according to considerations other than this profit motive. There can be no presumption that their actions would tend to stabilize world monetary conditions under a new gold standard. Since gold production outside these countries has peaked as known deposits near exhaustion, gold stock increases adequate to match world output growth cannot be expected.

Nearly unique historical conditions were favorable to the smooth operation of the gold standard, conditions that do not prevail today.⁵ For one thing, currency parities, rather than being abruptly and arbitrarily imposed, reflected purchasing power parities that evolved gradually. Unsustainable currency parities in the period between the two world wars created severe international disequilibria and depressed areas. It is difficult to guess what set of currency parities would be sustainable under the fixed rates that must accompany an international gold standard.

Second, prices and wages in the gold standard era were more downwardly flexible, facilitating the adjustment to deflationary pressures without reductions in output and employment. There was no discernible difference in real economic growth in the United States between the deflationary and inflationary segments of the era.

Third, fiscal authorities exercised "prudence" in that they avoided spending in excess of taxes, which simplified the pursuit of stable monetary conditions. The size of Government was far smaller than it is today; thus, fiscal operations had less potential for destabilizing credit markets.

Fourth, the period was one of relatively calm

social and political conditions. The deflationary episode of 1879-96 did generate a silver inflationist movement in the United States, but the Government was able to allow the deflation required to maintain gold convertibility. This was due to a widespread "monetary religion" and a belief in the justness of convertibility of the dollar into gold at pre-Civil War parity. It is doubtful that the current political system would not capitulate and abandon the gold standard under a similar extended deflation.⁶

International relations were relatively tranquil, with local wars but no widespread altercations. Wartime deficit financing needs and the inflationary pressures of war inevitably lead to at least temporary suspension of gold redemption privileges. For example, the gold standard was suspended by Britain during the Napoleonic Wars, by the United States during the Civil War, and by most of the major countries during World War I. It appears that the international disturbances were weaker in impact than those of today, price increases by the Organization of Petroleum Exporting Countries being a prime example.

Conclusion

Those who advocate a gold standard must recognize its operating characteristics. A gold standard does not imply stable prices. There were long periods of inflation and deflation during the years in which the gold price was fixed.

Under a gold standard the money supply would be more volatile and subject to the gold sale policies of South Africa and the Soviet Union. Depressions might be a periodic feature of the system unless major institutional and legal changes were made to promote wage and price flexibility. Inflationary pressures of a war and attendant deficit financing would cause a breakdown.

Under present circumstances, a gold standard might prove unsustainable. No policy is self-

5. These conditions are colorfully recounted in Leland B. Yeager, *International Monetary Relations: Theory, History, and Policy*, 2d ed. (New York: Harper & Row, 1976), pp. 307-9.

6. Milton Friedman and Anna Schwartz state abandonment of the gold standard would have been preferable to the depressed conditions of the 1890's, which were associated with price deflation. While economically desirable, abandonment "was politically unacceptable." See Milton Friedman and Anna Jacobson Schwartz, *A Monetary History of the United States, 1867-1960* (Princeton: Princeton University Press, 1963), p. 111.

enforcing; each depends on official and popular support. Such support, in turn, depends on the perception of the costs and benefits of adopting and adhering to the policy. It would be easier to sustain support for an appropriate discretionary policy to promote price stability than for an in-

flexible gold standard regime. A return to gold might squander a developing consensus to stop inflation. Finally, it should be recognized that merely fixing the price of gold does not prevent policy discretion, as shown by the actual behavior of central banks during the 1879-1914 period.

Appendix

A Model of the Price Level Under a Gold Standard in a Closed Economy

In this closed-economy model the general price level, the money stock, and levels of the monetary and nonmonetary gold stock are determined by the total stock of gold, the legal gold price, the gold reserve backing ratio, the proportion of nominal income held as money, and the real income level.¹ The model can be applied to the analysis of either the world under an international gold standard or a single country under the gold standard with floating exchange rates.

Gold sector

The total stock of gold, \bar{G} , is regarded as fixed. This stock comprises the monetary gold stock, G^m , and the nonmonetary stock demand, G^n :

$$(1) \bar{G} = G^m + G^n.$$

The nonmonetary stock demand for gold depends on its relative price and on income:

$$(2) G^n = [\alpha + \beta (P/P_g)]y, \quad \beta > 0.$$

The remainder of the total stock of gold is sold to or deposited with the monetary authorities and constitutes the monetary gold stock.

Monetary sector

The monetary gold stock, G^m , is used as the monetary base. Suppose that λ dollars' worth of gold is held as reserves for each

DEFINITIONS

Independent variables

\bar{G} = stock of available gold, in physical units.

P_g = legally mandated price of gold.

y = real income or output.

$\lambda \equiv P_g G^m / M$ = gold reserve backing ratio.

$k \equiv M / Py$ = proportion of nominal income held as money (inverse of velocity of money).

Dependent variables

G^m = monetary gold stock, in physical units.

G^n = nonmonetary gold stock, in physical units.

P = general price level.

M = money stock.

dollar of the money stock. Then:

$$(3) P_g G^m = \lambda M^s, \quad 0 < \lambda \leq 1,$$

where M^s is the quantity of money supplied.

The money supply function is:

$$(4) M^s = \lambda^{-1} P_g G^m.$$

The money demand function is:

$$(5) M^d = kPy,$$

where M^d is the quantity of money demanded and k is the proportion of nominal income held as money, or the inverse of velocity.

Money market equilibrium requires:

$$(6) M^s = M^d,$$

which implies:

$$(7) \lambda^{-1} P_g G^m = kPy.$$

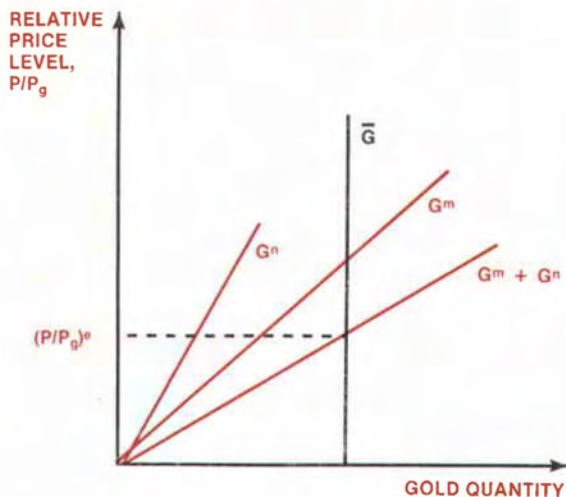
From this we can find an expression for the price level:

$$(8) P = P_g G^m (\lambda k y)^{-1}.$$

Equation 8 shows that the price level is proportional to the monetary gold stock, G^m , other things the same. By rewriting

1. A model in which the total gold stock is influenced by gold production is presented in Robert J. Barro, "Money and the Price Level Under the Gold Standard," *Economic Journal* 89 (March 1979):13-33.

Price level equilibrium requires that gold uses equal the gold stock



equation 7, we have:

$$(9) G^m = (P/P_g)\lambda ky.$$

Equilibrium price level

Now the price level resulting under a gold standard can be determined. By substituting equations 9 and 2 into equation 1, we arrive at:

$$(10) \bar{G} = \overbrace{(P/P_g)\lambda ky}^{G^m} + \overbrace{[\alpha + \beta(P/P_g)]y}^{G^n},$$

which simply states that the monetary and nonmonetary uses of gold must be equal to the total available supply.

The accompanying diagram illustrates equation 10. The total supply, \bar{G} , is a vertical line because it is regarded as fixed, regardless of the price level's ratio to the fixed gold price. The quantity of monetary gold is proportional to the price level; hence, G^m depends positively on (P/P_g) . G^n is also positively related to (P/P_g) . The curve for the total of G^m and G^n ($G^m + G^n$) is found by summing the curves horizontally.

There is only one ratio of the price level to gold's price that equates the quantity of gold in both uses with the available supply. This price occurs at the point where the \bar{G} and $G^m + G^n$ curves intersect and has been labeled $(P/P_g)^e$. The price level is simply this relative price level times P_g .

The equilibrium price level can also be seen algebraically by solving equation 10 for P :

$$(11) P = P_g(\bar{G} - \alpha y)[(\beta + \lambda k)y]^{-1}.$$

New Member Banks

Security National Bank, Amarillo, Texas, a newly organized institution located in the territory served by the Head Office of the Federal Reserve Bank of Dallas, opened for business February 2, 1981, as a member of the Federal Reserve System. The new member bank opened with capital of \$1,000,000 and surplus of \$1,000,000. The officers are: Tom Patterson, Chairman of the Board and President; Jeff Brown, Assistant Vice President; and Frank O. Nelson, Cashier.

New Member Banks

First National Bank of Cedar Park, Cedar Park, Texas, a newly organized institution located in the territory served by the San Antonio Branch of the Federal Reserve Bank of Dallas, opened for business February 2, 1981, as a member of the Federal Reserve System. The new member bank opened with capital of \$575,000 and surplus of \$575,00. The officers are: Monroe Bethke, Chairman of the Board; Virginia Straughan, President; Robert Bacon, Executive Vice President; Nelda Milliken, Vice President and Cashier; Sue Daniel, Vice President; Joy Alley, Vice President; Linda Taylor, Vice President; and Dorothy Peterson, Assistant Cashier.

Bent Tree National Bank, Addison, Texas, a newly organized institution located in the territory served by the Head Office of the Federal Reserve Bank of Dallas, opened for business February 9, 1981, as a member of the Federal Reserve System. The new member bank opened with capital of \$1,500,000 and surplus of \$1,500,000. The officers are: Arthur Z. Barnes, Jr., Chairman of the Board; Michael K. Sanders, President; and Pamela L. Morris, Cashier.

Bank of San Felipe Green, N.A., Houston, Texas, a newly organized institution located in the territory served by the Houston Branch of the Federal Reserve Bank of Dallas, opened for business February 9, 1981, as a member of the Federal Reserve System. The new member bank opened with capital of \$1,250,000 and surplus of \$1,250,000. The officers are: Robert C. Baldwin, President and Chief Executive Officer; Kirk B. Whitehouse, Vice President and Cashier; J. Bradley Duff, Vice President; Linda Judge Murphy, Assistant Vice President; and Joe Neal, Jr., Assistant Vice President.

Westhollow National Bank, Houston, Texas, a newly organized institution located in the territory served by the Houston Branch of the Federal Reserve Bank of Dallas, opened for business February 9, 1981, as a member of the Federal Reserve System. The new member bank opened with capital of \$1,000,000 and surplus of \$1,000,000. The officers are: Charles Noble, Chairman of the Board and President, and Ronald Banks, Vice President and Cashier.

Commerce Parkway Bank, N.A., Addison, Texas, a newly organized institution located in the territory served by the Head Office of the Federal Reserve Bank of Dallas, opened for business February 12, 1981, as a member of the Federal Reserve System. The new member bank opened with capital of \$1,500,000 and surplus of \$1,500,000. The officers are: Maury Jaffer, Chairman of the Board; Carl L. Colgin, President; Bobby W. Hackler, Senior Vice President and Cashier; and Pat D. Greer, Commercial Banking Officer.

Allen National Bank, Allen, Texas, a newly organized institution located in the territory served by the Head Office of the Federal Reserve Bank of Dallas, opened for business February 21, 1981, as a member of the Federal Reserve System. The new member bank opened with capital of \$750,000 and surplus of \$750,000. The officers are: Don E. Brazeal, Chairman of the Board; Dan J. Jackson, President; and Kim T. Becker, Vice President and Cashier.

“Fed Quotes”

Brief Excerpts from Recent Federal Reserve Speeches, Statements, Publications, Etc.

“Given enough time, sluggish business performance should itself tend to restrain inflation. But our objective as a nation must be to speed the disinflationary process. That will be a legitimate expectation only if we can succeed in changing attitudes and policies across a broad range of public and private behavior. Only then can we confidently anticipate that a relaxation of pressures on financial markets could be sustained and that the stage will be set for full recovery and expansion.

“The task is both difficult and painful because patterns of inflationary behavior are by now so deeply ingrained in individual attitudes that the process feeds on itself. That will change only when there is a visible, sustained commitment to policies that will in fact reduce the strong upward price thrust—and permit market processes to penalize those speculating on inflation—even when those policies, in the short run, entail risks and strains. Credibility in policy commitment will have to be earned by performance maintained through thick and thin. That is one reason we in the Federal Reserve take our own monetary and credit objectives so seriously—in setting realistic targets in the first place, in explaining their implications and our methods for approaching them, and in substantially meeting them over reasonable periods of time. But monetary policy, indispensable as it is, is only one instrument, and as I have emphasized, relying entirely on that instrument focuses the strains on financial markets and those most dependent on them.

“The fiscal posture of the federal government is the most important of the other instruments that can be brought to bear in changing both expectations and current reality. That posture has several dimensions.

“The point has rightly been emphasized that the level of federal taxation itself impairs incentives and adds to costs, and that taxes are not only high but rising. The relevant question is not whether tax reduction is desirable in itself; it obviously is if we want a healthy private economy. The real debate is how that desirable—even necessary—objective can be achieved consistent with fighting inflation and reducing the pressures on financial markets—pressures that could otherwise frustrate the beneficial effects. The concern is not limited to reducing the immediate deficit, important as that is as a source of current interest rate pressures. Even more significant in many ways is the forward planning necessary to assure that, as the economy returns to more satisfactory operating levels, the financial position of the government indeed returns to balance, making way for the private investment we need.”

Paul A. Volcker, Chairman, Board of Governors of the Federal Reserve System (Before the Committee on Banking, Housing, and Urban Affairs, U.S. Senate, January 7, 1981)

“Our basic objective is to increase productivity, to utilize efficiently more of our human resources, and to resume economic growth. We can’t do those things while inflation moves higher. The longer we take to face up to the problem, the greater the difficulty in the end. That seems to me the simple lesson of the 1970’s.”

Paul A. Volcker, Chairman, Board of Governors of the Federal Reserve System (Before the Annual Meeting of the American Farm Bureau Federation, New Orleans, Louisiana, January 12, 1981)

“The decline in productivity is a familiar fact. Though all its roots are not fully understood, I believe that in good part they are related to inflation. Inflation hampers business investment, an important source of productivity, by distorting reported profits; such distortion results in excessive taxes, thereby reducing the return on investment. The uncertainty created by inflation raises costs, by requiring higher risk premiums, and generally interferes with business planning. One major contribution to increased productivity would be to lower the rate of inflation.”

“For its part, the Federal Reserve is attempting to foster an environment that should facilitate a reduction in overall inflation pressures and thus promote more vigorous growth and prosperity. A reduction of inflation . . . should make an important contribution to productivity. Also, a lower inflation rate is the only feasible way of reducing interest rates. An easier monetary policy might reduce interest rates for a short period, perhaps on the order of a few weeks or months. But, as soon as the inflationary implications of this policy became obvious to the market—and this would not take long—interest rates would move up with expected inflation, as they have done before. Thus, the Federal Reserve really has no option other than to exert restraint in order to set the stage for the long-run gains in employment and productivity that we have every right to expect from the American economy.”

Henry C. Wallich, Member, Board of Governors of the Federal Reserve System (Before the Temporary Subcommittee on Industrial Growth and Productivity of the Committee on the Budget, U.S. Senate, January 27, 1981)

Regulatory Briefs and Announcements

Board Publishes New Service

The Federal Reserve Board has announced publication of a new looseleaf service. Entitled "Federal Reserve Regulatory Service," it will consist of four publications and will ultimately include all Board regulations and related interpretations and documents.

The complete service will incorporate *all* Board regulations and related materials. The three separate handbooks will cover securities credit, monetary policy, and consumer affairs.

The first part of the new service—the Securities Credit Transactions Handbook—was published in February. It contains Regulations G, T, U, and X, dealing with extensions of credit for the purchase of securities, plus related statutes, interpretations, rulings, and staff opinions.

A similar handbook has been published on Monetary Policy and Reserve Requirements, containing Regulations A, D, and Q as well as the rules of the Depository Institutions Deregulation Committee.

The other handbook pertains to Consumer and Community Affairs and will include Regulations B, C, E, Z, AA, and BB plus associated documents.

The four publications are individually priced, and subscribers will automatically receive updates at least monthly. All subscription requests should be addressed to Regulatory Service Subscriptions, Federal Reserve Board, 20th Street and Constitution Avenue, N.W., Washington, D.C. 20551.

Regulation K: Board Adopts New Interpretation

The Board of Governors of the Federal Reserve System has issued an interpretation of Regulation K (International Banking Operations) describing the circumstances in which a U.S. banking organization will be permitted to invest in foreign companies, including foreign banks, that engage in domestic business in the United States.

Under the interpretation, a U.S. banking organization would generally be given the Board's consent for the investment if the following conditions were satisfied:

- The foreign company is engaged predominantly in business outside the United States or in internationally related activities in the United States.
- The direct or indirect activities of the foreign company in the United States are either banking or closely related to banking.
- The U.S. banking organization does not own 25 percent or more of the voting stock of, or otherwise control, the foreign company.

In considering whether to grant its consent for such investments, the Board will also review the proposals to ensure that they are consistent with the purposes of the Bank Holding Company Act and the Federal Reserve Act.

Regulation C: Board Proposes Revision and Simplification

The Federal Reserve Board has requested public comment on a revision and simplification of Regulation C, which implements the Home Mortgage Disclosure Act. The act requires financial institutions located in standard metropolitan statistical areas (SMSAs) to disclose publicly the location of their residential mortgage loans.

The principal proposed revisions of Regulation C would:

- Permit institutions that have been exempt but lose the exemption to begin compiling data for the year following the year in which the exemption is lost, rather than for the year preceding the loss.
- Require disclosures of conventional loans and of Federal Housing Authority, Farmers Home Administration, and Veterans' Administration loans but not the sum of the conventional and other types of loans.
- Permit branches of institutions to cease making disclosures of loans in the SMSA in which the home office is located.
- Permit, but not require, branch office disclosures to omit all data relating to loans in SMSAs other than that in which the branch office is located.
- Permit institutions to omit the currently required annual notice to the public concerning the availability of mortgage loan data.

In keeping with the Board's Regulatory Improvement Project, which calls for review and simplification of all its regulations, the Board has taken this opportunity to simplify Regulation C, focus disclosure requirements on those that are most useful and that can be provided at reasonable cost, and make the regulation more concise. The proposed regulation is nearly a third shorter than the existing regulation.

Comments must be received on or before April 15 and should be mailed to the Secretary, Board of Governors of the Federal Reserve System, Washington, D.C. 20551, with reference to Docket No. R-0350.

Regulation E: Amendment Exempts Overdraft Credit Plans

The Federal Reserve Board has adopted in final form an amendment to Regulation E, which implements the Electronic Fund Transfer Act. The amendment allows creditors to debit their customer's accounts automatically for repayment of preauthorized overdraft credit.

Under the act, creditors are prohibited from making automatic repayment of loans a condition of extending credit. However, the Board has exempted overdraft credit plans from this prohibition as a means of facilitating the continued extension of overdraft checking protection to consumers by permitting the automatic collection of repayments.

Now Available

Recently issued Federal Reserve circulars, speeches, statements to Congress, publications, etc., may be obtained by contacting the Department of Communications, Financial and Community Affairs, Federal Reserve Bank of Dallas, Station K, Dallas, Texas 75222, unless indicated otherwise. Requests for circulars should specify the circular numbers.

Circulars

- Holidays [All Federal Reserve banks and branches].** 1 p. Circular No. 81-30 (February 6, 1981).
- Interpretation of Regulation K (International Banking Operations): Investments by United States Banking Organizations in Foreign Companies.** 2 pp. Circular No. 81-31 (February 9, 1981).
- Revision to Bulletin 6 (Wire Transfers of Funds), with Bulletin 6A (Schedule of Time Limits) and Bulletin 6B (Fee Schedule for Transfers of Funds Services); Bulletin 6C (Fee Schedule for Net Settlement Services).** 9 pp. Circular No. 81-32 (February 13, 1981).
- Amendment to Regulation B [Equal Credit Opportunity].** 2 pp. Circular No. 81-33 (February 23, 1981).
- Employee Retirement Income Security Act of 1974 (ERISA): Reporting Procedures.** 4 pp. Circular No. 81-34 (February 17, 1981).
- Revised Regulation Q [Interest on Deposits] Pamphlet and Supplement.** 15 pp. Circular No. 81-35 (February 18, 1981).
- Proposal to Establish International Banking Facilities in U. S.: Extension of Comment Period.** 2 pp. Circular No. 81-40 (February 23, 1981).
- Proposed Amendment to Regulation C [Home Mortgage Disclosure].** 22 pp. Circular No. 81-41 (February 24, 1981).

Speeches and Statements

- Statement by **Paul A. Volcker** before the **Joint Economic Committee** of the U.S. Congress. 8 pp. February 5, 1981.
- Statement by **Nancy H. Teeters** before the **Subcommittee on Consumer Affairs** of the Committee on Banking, Finance and Urban Affairs, U.S. House of Representatives. 3 pp. February 5, 1981.
- Remarks by **Henry C. Wallich** ("Economic Policy and the Need to Stop Inflation") at **St. Cloud University, St. Cloud, Minnesota.** 10 pp. February 13, 1981.

Statement by **Henry C. Wallich** before the **Subcommittee on International Finance and Monetary Policy** of the Committee on Banking, Housing, and Urban Affairs, U.S. Senate. 6 pp. February 17, 1981.

Statement by **Nancy H. Teeters** before the **Subcommittee on Consumer Affairs** of the Committee on Banking, Housing, and Urban Affairs, U.S. Senate. 9 pp., including appendix. February 18, 1981.

Statement by **Paul A. Volcker** before the **Committee on Banking, Housing, and Urban Affairs**, U.S. Senate. 13 pp., including tables. February 25, 1981.

Statement by **J. Charles Partee** before the **Subcommittee on Telecommunications, Consumer Protection and Finance** of the Committee on Energy and Commerce, U.S. House of Representatives. 7 pp. February 26, 1981.

Pamphlets, Brochures, and Reports

Annual Report to Congress on the Equal Credit Opportunity Act for the Year 1980. Prepared by the Board of Governors of the Federal Reserve System. 12 pp. February 2, 1981.

Monetary Policy Objectives for 1981. Prepared by the Board of Governors of the Federal Reserve System. (Summary of report to the Congress on monetary policy pursuant to the Full Employment and Balanced Growth Act of 1978) 15 pp. February 25-26, 1981.

Pamphlet announcing Securities Credit Transactions Handbook. Issued by the Board of Governors of the Federal Reserve System. (Describes a new looseleaf service of the Federal Reserve Board and includes an order form) 4 pp. February 1981.

Federal Reserve Services. Published by the Federal Reserve Bank of Dallas. (A pamphlet summarizing information on reserve requirements and reporting and schedules for access and pricing of Federal Reserve services and also listing individuals at the Dallas Reserve Bank and its branches to contact about specific operations) 6 pp. March 1981.